

Abstract

METHOD AND SYSTEM FOR BRANCH METRIC CALCULATION IN A VITERBI DECODER

In a convolutional decoder, eight branch labels for branches in two
5 trellis butterflies are calculated using a single output of an encoder. For a
group of four consecutive states, S_i , S_{i+1} , S_{i+2} , and S_{i+3} , state S_{i+3} is loaded
into a convolutional encoder and the convolutional encoder input bit is set to
1. The output bits of the convolutional encoder are used as a branch label in
a first trellis butterfly. A branch label in the second trellis butterfly is
10 calculated with a formula in a branch label calculator using the
convolutional encoder output bits as an input to the formula. The remaining
branch labels are calculated from the convolutional encoder output and the
branch label output from the branch label calculator. Selected bits of the
branch labels are used to address a small branch metric register file.